Reference Sheet Development

- Must develop Reference State descriptions for each indicator, if they are not available
- Done with a group of experts on soils and plants for the ecological site
  - Recommended to include multiple agencies, academics, ranchers and interested NGO's
- Compile all your resources
  - Ecological site descriptions, soil surveys, maps, photos, etc.

12. Functional/Structural Groups

- Begin here
  - Most people are familiar with dominant plants
  - Lays groundwork for understanding other indicators
- Why use F/S groups not species?
  - Several species on an ecological site may fill a similar functional or structural role.
    - One or a few species can be missing as long as the group's dominance order on the site is maintained

What are criteria for F/S Groups?

- Functional Groups
  - Life Cycle (History) & Phenology
    - Annual or Perennial
    - Early vs. Late-season growth
  - Photosynthetic Pathways
    - C3, C4 or CAM
  - Nitrogen-fixing ability
- Structure
  - Growth Form
    - Tree, shrub, forb, graminoid, succulent, vine
    - Tall, Short
    - Rooting form for forbs (tap vs. fibrous)
    - Clonal form (rhizomatous vs. bunchgrass)

Inappropriate F/S Grouping Criteria

- Palatability
  - Relates to a specific animal preference not F/S
- Color of foliage or flowers
  - Does not impact F/S groups

Suggested Priorities for Groups

- Structure
  - List the major growth forms
    - Some growth form groups may have many members
      - Subdivide using height groups (tall vs. short)
- Function
  - Annual vs. Perennial (on most ecological sites perennials will dominate)
  - PSN Pathways (Most sites C3 vs C4 grasses)
  - Nitrogen-fixing
  - Phenology (early vs. late season)

Lumping & Splitting

- Consider plant communities in alternative states vs. the reference state.
  - Be certain you have represented the major F/S groups that can dominate the site in the reference state and any alternative states.
  - Are there F/S groups that will never dominate the site?
    - If so, lump them with other groups
  - Do not have single species F/S group unless it will likely dominate the site in the reference or alternative states

F/S Reference Description

- Dominant > 40% composition
- Subdominant = 11 – 40 % composition
- Minor < 11 % composition
  - Describe groups that will be dominant and subdominant in the reference state and under what conditions might they change dominance and remain within the reference state
    - Example – Sage & grass co-dominate without fire and grass dominates with recent fire.

Proposed F/S Groups

Grasses

Forbs

Woody

Proposed F/S Groups

Grasses

Perennial bunchgrasses

- Idaho fescue
- Bluebunch wheatgrass
- Blue wildrye
- Lemmon's needlegrass
- Mountain brome
- Pine bluegrass
- Prairie junegrass

Forbs

- Hog fennel
- Wooly eriophyllum
- Carrotleaved horkelia
- Lomatium
- Western buttercup
- Yampa

Trees

Resprouters

- Oregon white oak
- Oregon black oak
- Pacific madrone

Shrubs

Non-sprouters

- Buckbrush
- Manzanita

Resprouters

- Prunus
- Poison oak

15. Expected Annual Production

- ???? - ???? lbs/acre

15. Expected Annual Production

- 800 - 1400 lbs/acre
- 1000 lbs/acre in a normal year

Small Group Exercise

- Each group writes reference sheet descriptions for:
  - 4. Bare Ground
  - 7. Litter Movement
  - 13. Mortality & Decadence
- Each reference description should include:
  - Include spatial and temporal variation
  - Be as quantitative as possible
- Report back to the main group